



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/544,121

08/02/2005

Martin Wedel

9342-72

8642

54414

7590

01/13/2009

MYERS BIGEL SIBLEY & SAJOVEC, P.A.

P.O. BOX 37428

RALEIGH, NC 27627

EXAMINER

KARACSONY, ROBERT

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

01/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/544,121	Applicant(s) WEDEL ET AL.	
	Examiner ROBERT KARACSONY	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 17, 2008 has been entered.

Claim Objections

2. Claim 20 is objected to because of the following informalities: In line 9 of the claim, replace "that that" with --that--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-3, 5-10, 13 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Nevermann (WO 02/35810, translation provided by US 6,980,157).

Nevermann teaches an integrated speaker carrier and antenna element for a communication terminal, comprising.

a sheet of a flexible film (1b) having a conductive first portion (col. 3/lines 57-58 discloses '1b' being conductive) forming a first antenna element (col. 3/lines 57-58), and

an elongated second portion (15) carrying a conductive lead (col. 4/lines 28-32), the elongated second portion including an inner end (end of '15' where '17' is located) that is adjacent to the conductive first portion (fig. 5) and an outer end (end of '15' where '18' is located) that is connected to a speaker (earpiece, col. 3/lines 32-35), such that the elongated second portion has a length (length of '15') defined by the inner end and the outer end and extends away from the conductive first portion (fig. 5 illustrates the '15' on top of '1b', which therefore must be raised from '1b', thus, interpreted to be extending away from '1b') and the inner end (fig. 5 illustrates '15' extending away from '17' toward 18') to the speaker and the outer end along at least a portion of the length (fig. 5);

wherein said elongated second portion is bent (fig. 5) such that a primary audio output side (side of speaker that faces the first portion) of the speaker faces the first portion that said speaker and said outer end of said elongated second portion are positioned at an aperture (6) in said first portion.

Claim 2: Nevermann teaches said second portion carries a pair of conductive leads (15) from adjacent said first portion to respective speaker connection pads (18) at said outer end.

Claim 3: Nevermann teaches said second portion carries at least one conductive lead (15), which is electrically insulated (fig. 5 illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly) from said first portion.

Claim 5: Nevermann teaches said conductive lead extends from a connection pad (17) arranged adjacent to said first portion (fig. 5) at a straight edge (fig. 2, bottom edge of '1b' between '7' and '8') of said flexible film.

Claim 6: Nevermann teaches said conductive first portion is a ground plane of an antenna for a radio communication terminal (col. 4/lines 12-14).

Claim 7: Nevermann teaches said conductive first portion is an antenna element (col. 3/lines 7-15) of an antenna for a radio communication terminal, and has a pattern adapted to provide resonance at predetermined radio frequencies (col. 3/lines 57-62).

Claim 8: Nevermann teaches a support structure (20) carrying (fig. 2) a second antenna element (1a), is arranged at a predetermined distance (distance between left end of '1b' and a point on '20' equaling the distance between '1a' and '1b') from said first antenna element.

Claim 9: Nevermann teaches said flexible film is attached to said support structure (fig. 2) such that said conductive first portion is electrically connected to a ground plane of said support structure (col. 4/lines 12-14).

Claim 10: Nevermann teaches said flexible film is attached at a side edge (bottom edge of '1b' between '7' and '8') thereof to said support structure (fig. 2), at which a side edge (outer circular edge of '17') of a connector pad (17) to said conductive lead is arranged (fig. 2).

Claim 13: Nevermann teaches an insulating spacer (11) is arranged intermediate said support structure and said flexible film (fig. 2 illustrates left end of '11' arranged intermediate '20' and '1b'), defining said predetermined distance between said first and second antenna elements (fig. 2).

Claim 18: Nevermann teaches said support structure is a printed circuit board of a radio communication terminal (col. 4/lines 4-6).

Claim 19: Claim 19 is considered a suggested use limitation and is not given any patentable weight. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Aisenbrey (US 6,741,221).

Claim 4: Nevermann teaches all of the limitations of claim 1, as discussed above. Nevermann fails to teach said flexible film is made from an insulating material, and wherein said first conductive portion and said lead form parts of a layer of a conductive material coated on said flexible film. However, Aisenbrey teaches forming antennas by loading conductive loaded based resin in an insulative structural resin (col. 3/lines 21-34) because it reduces costs in the fabrication process as well as manufacturing processes (col. 3/lines 3-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the antennas of Aisenbrey as the antennas of Nevermann in order to have reduced the costs in the fabrication process as well as manufacturing processes.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize said first conductive portion and said lead form parts of a layer of a conductive material (both are conductive) coated on said flexible film ('1b' would be loaded into the structural resin and said lead would lay on top of '1b').

Claim 20 : Nevermann teaches a method of manufacturing an integrated speaker carrier and antenna element for a communication terminal, comprising:

providing a flexible film (1b) , having a first conductive surface portion (col. 3/lines 57-58 discloses '1b' being conductive), and an elongated second portion (15) having an inner end (end of '15' where '17' is located) adjacent to said first portion (fig. 5 illustrates '15' adjacent to '1b'), said elongated second portion carrying a lead (col. 4/lines 28-32) insulated from said first portion (fig. 5 illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly);

attaching a speaker (earpiece, col. 3/lines 32-35) to an outer end (end of '15' where '18' is located) of the elongated second portion, connected to said lead (the functionality of the earpiece requires that the earpiece to be attached to said outer end of the elongated second portion, connected to said lead);

forming an aperture (6) in said first portion; and

bending the elongated second portion (fig. 5 illustrates '15' bending) such that a primary audio output side (side of speaker that faces the first portion) of the speaker faces the first portion and said speaker and said outer end of the elongated second portion are positioned at the aperture (fig. 5 illustrates '18' which is where the earpiece is to be attached positioned at the aperture).

wherein the elongated second portion has a length (length of '15') defined by the inner end and the outer end and extends away from the conductive first surface portion (fig. 5 illustrates the '15' on top of '1b', which therefore must be raised from '1b', thus, interpreted to be extending away from '1b') and the inner end (fig. 5 illustrates '15' extending away from '17' toward 18') to the speaker and the outer end along at least a portion of the length (fig. 5).

Nevermann fails to teach the flexible film is of an insulating material. However, Aisenbrey teaches forming antennas by loading conductive loaded based resin in an insulative structural resin (col. 3/lines 21-34) because it reduces costs in the fabrication process as well as manufacturing processes (col. 3/lines 3-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the antennas of Aisenbrey as the antennas of Nevermann in order to have reduced the costs in the fabrication process as well as manufacturing processes.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Phillips et al. (US 6,297,778, hereinafter Phillips).

Claim 11: Nevermann teaches all of the limitations of claim 10, as discussed above. Nevermann fails to teach said connector pad is connected, at said side edge thereof, to speaker control circuitry arranged on said support structure. However, Phillips teaches arranging speaker control circuitry on a printed circuit board of a cordless communication device (col. 3/lines 19-22). By this arrangement, one with ordinary skill in the art would realize a reduction in space requirements needed for the internal components of a portable device, which is being demanded by the manufacturing of portable devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Phillips

with the invention of Nevermann in order to have located the speaker control circuitry on the same PCB of Nevermann, which would have saved space.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize said connector pad is connected, at said side edge thereof, to speaker control circuitry (the pads '17' are connected to the speaker control circuitry) arranged on said support structure.

8. Claims 12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Gunee et al. (US 2001/0052879, hereinafter Gunee) and Phillips.

Claim 12: Nevermann teaches all of the limitations of claim 8, as discussed above, as well as said conductive first portion being electrically connected to a ground plane of said support structure at said straight edge (fig. 2, col. 4/lines 12-14). Nevermann fails to teach said flexible film is bar soldered at a straight edge to said support structure. However, Gunee teaches that it is less costly to solder an antenna onto printed circuit boards [0003]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have soldered the antenna of Nevermann onto the printed circuit board, as taught by Gunee, in order to have reduced the cost.

Nevermann also fails to teach a connector pad to said conductive lead is connected to speaker control circuitry arranged on said support structure.

Nevermann also fails to teach a connector pad to said conductive lead is connected to speaker control circuitry arranged on said support structure. However, Phillips teaches arranging speaker control circuitry on a printed circuit board of a cordless communication device (col. 3/lines 19-22). By this arrangement, one with ordinary skill in the art would realize a reduction

in space requirements needed for the internal components of a portable device, which is being demanded by the manufacturing of portable devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Phillips with the invention of Nevermann in order to have located the speaker control circuitry on the same PCB of Nevermann, which would have saved space.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize a connector pad (17) to said conductive lead is connected to speaker control circuitry (the pads '17' are connected to the speaker control circuitry) arranged on said support structure.

Claim 16: Nevermann teaches all of the limitations of claim 13, as discussed above. Nevermann fails to teach said spacer is attached to said support structure by cooperating engagement members. However, Gunee teaches attaching an antenna to a PCB using an antenna connector that allows for easy removal [0007], which is desired for mobile phones [0003]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the attaching means of Gunee as the cooperating engagement members of Nevermann in order to have easily removed the antenna.

Claim 17: Nevermann teaches all of the limitations of claim 13, as discussed above. Nevermann fails to teach said spacer has a protruding member engaging with a recess in said support structure. However, Gunee teaches connecting an antenna by engaging protrusions (48) in an antenna connector with recesses (49) in a PCB (fig. 6) in order to increase the attaching force between the antenna and the PCB [0031]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the attaching means

of Gunee with the invention of Nevermann in order to have increase the attaching force between the antenna and the PCB.

9. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Yamamori (JP 2002028287 A).

Claim 14: Nevermann teaches all of the limitations of claim 13, as discussed above. Nevermann fails to teach said spacer comprises speaker attachment means, devised to secure said speaker adjacent to said aperture. However, Yamamori discloses a means to attach a speaker, which allows for easy and reliable attachment (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the spacer of Nevermann with the speaker attachment means of Yamamori in order to have easily and reliably attached the speaker adjacent to said aperture.

Claim 17: Nevermann teaches all of the limitations of claim 13, as discussed above. Nevermann fails to teach said spacer has a protruding member engaging with a recess in said support structure. However Yamamori teaches a means of attachment, which involves inserting protrusions into holes, which allows for easy and reliable attachment (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the attachment means of Yamamori with the spacer and support structure for Nevermann in order to have easily and reliably attached the two components.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Moren et al. (2002/0000940, hereinafter Moren).

Claim 15: Nevermann teaches all of the limitations of claim 13, as discussed above. Never fails to teach said flexible film is attached to said spacer with an adhesive. However,

Moren teaches attaching an antenna using an adhesive to the back of the housing of a radio communication device [0063] because it is easy to mount [0005]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have attached the flexible film of Nevermann to the said spacer, as taught by Moren, in order to have easily mounted the antenna.

11. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Aisenbrey as applied to claim 20 above, and further in view of Rudisill et al. (US 6,208,874, hereinafter Rudisill) and Jo et al. (US 2003/0156065, hereinafter Jo).

Claim 21: Nevermann in view of Aisenbrey teaches all of the limitations of claim 20, as discussed above. Nevermann and Aisenbrey both fail to teach:

coating said insulating film with a conductive material;

removing selected portions of the conductive material from the film, to define the first conductive surface portion and the lead; and

cutting the film such that the elongated second portion thereof, carrying said lead, is shaped.

However, Rudisill teaches a method of manufacturing speaker traces and antennas by first plating a surface and then photo etching the plated surface to form the speaker traces as well as the antennas (col. 14/lines 38-40). Ease of manufacture and low fabrication cost would be obtained by plating and then etching to obtain the antenna ([0006] of Jo). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Rudisill and Jo with the invention of Nevermann in order to have obtained ease of manufacture and low fabrication cost.

Claim 22: Nevermann in view of Aisenbrey, Rudisill and Jo teach all of the limitations of claim 21, as discussed above. Nevermann fails to teach removing selected portions of the conductive material comprises etching. However, Rudisill teaches removing selected portions of the conductive material comprises etching (col. 14/lines 38-40). For the reasons discussed above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Rudisill and Jo with the invention of Nevermann in order to have obtained ease of manufacture and low fabrication cost.

Claim 23: If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize removing selected portions of the conductive material comprises defining a pair of separate leads (fig. 5 of Nevermann, 15) insulated from said first portion (fig. 5 of Nevermann illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly) and extending away from adjacent to said first portion (fig. 5 illustrates '15' extending away from adjacent to said first portion).

Response to Arguments

12. Applicant's arguments filed October 17, 2008 have been fully considered but they are not persuasive.

13. Regarding the arguments that *Nevermann* fails to teach "said elongated second portion is bent such that a primary audio output side of the speaker faces the first portion", see pages 7-8 of the Remarks, the Examiner respectfully disagrees with Applicant. Since sound waves generated by a speaker are produced by the cone of the speaker vibrating back and forth, sound waves are

inherently produces behind as well as in the front of a speaker. Therefore, the Examiner interprets the back of the speaker as the “primary audio output side of the speaker.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT KARACSONY whose telephone number is (571)270-1268. The examiner can normally be reached on M-F 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. K./
Examiner, Art Unit 2821

/Hoang V Nguyen/
Primary Examiner, Art Unit 2821

Application/Control Number:
10/544,121
Art Unit: 2821

Page 14